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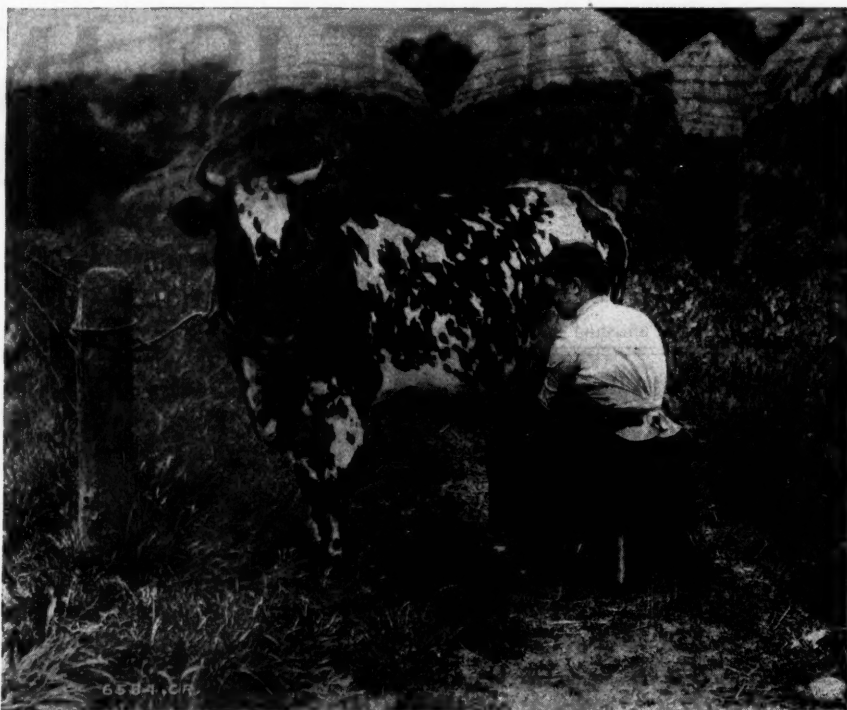
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ORIGINAL ARTICLES

SANITATION OF SUMMER CAMPS*

BY ELMER W. CAMPBELL, D.P.H.
AUGUSTA, ME.

The sanitation of summer camps is a problem which has been with us for a number of years but on which very little work has been performed by the Health authorities until the last decade. Previous to the coming of the automobile the general public traveled very little over the highways excepting for short distances and most of their stops were made at regular places of public entertainment, such as hotels and inns. The universal use of automobiles has altered these conditions to such an extent that now many families are apt to start out at the beginning of the summer season and travel from one end of the country to the other, stopping wherever fancy may dictate, either camping out at regular camping grounds or possibly in any open spot that may be available. To accommodate this vast hoard of campers thousands of cabins have been erected and tenting grounds opened up by private individuals and frequently by municipalities.

Another type of camps which have been increasing with great rapidity throughout the country are known as recreational camps, which includes sporting camps, boys, girls and family camps and which are often conducted very much like an open air school combining educational facilities with the benefits of outdoor camping. The necessity for proper sanitation of these various kinds of camps has been impressed on the health authorities in direct proportion to the increase in the number of camps.

In many states the legislative bodies have passed rules and regulations or laws governing the sanitary arrangements in the various kinds of camps. In Maine the last legislature passed a law requiring that all recreational camps, overnight camps,

roadside lodging and eating places must secure a license from the State Department of Health in order to carry on their business. The regulations pertaining to public eating places must be observed in order that a license may be secured.

The types of camps which are today causing us a great deal of concern and which need very careful supervision as to sanitary arrangements are the vacation camps, especially those conducted for boys, and girls and the automobile camps.

Too great care cannot be exercised in disease prevention measures when one considers that there are within the State of Maine alone, two hundred and thirteen boys' and girls' camps accommodating thousands of children whom we hope will be greatly benefited by their stay in the camps and will return home healthy and strong, carrying no possible infection to the schools or their home communities.

In 1881 the first camp to be established for boys was started in New Hampshire and from that humble beginning was developed one of the great summer industries in some of our northern states. Of course, there are numbers of camps in other states of the union and in Canada but not in the proportion that they exist in the northern states. The first camp was crude and the boys lived "Next to Nature."

The reception of the idea of summer camps by educators and schoolmen was very slow at first. Although slow it was progressive and finally the idea of the summer camp for boys spread to those interested in the advancement of boys' work and soon other camps were established. These camps have been largely maintained for healthful recreation, but there are many camps among them where tutoring is done.

The benefit of the boys' camp had been recognized several years before girls' camps were established. Dr. and Mrs. Luther M. Gulick, in 1888, had a camp in Connecticut for their own daughters, and from this grew an idea for summer camp for girls and in 1910 they established the Luther Gulick camps in Maine.

*Read before the New England Health Institute, held in Providence, R. I., September 27th to 30th, 1927.

The real start for girls' camps started in 1902, although something had been done previous to this. The first camp for girls in Maine was the Cobbs Camps established this year, 1902.

That the first camps should have been located in New England on some of our loveliest lakes is only natural. The first camps were naturally started in camping places that had long been favorite haunts. Until within a short time ninety per cent of all camps were in New England, but now they extend from the Atlantic to the Pacific and from Canada to the Gulf, yet the camps in New England outnumber the camps of all the rest of the country. Since the war the number of camps have rapidly increased, perhaps influenced by the benefit which our soldier boys received in our war camps.

Besides the camps operated and owned by private individuals, many organizations such as the Y. M. C. A., Y. W. C. A., Girl and Boy Scout, Church, Red Cross, Salvation Army, Boys' and Girls' Club and many others have established camps.

As a natural result of an increase in camps which has naturally made competition to obtain campers, the grade of camps has gradually increased until at the present time there are millions of dollars invested in this enterprise and millions of dollars are spent by the campers each year.

The camp investment alone in the state of Maine is estimated at about \$5,000,000 and about \$10,000 a day is paid to the farmers of the State during the camping season for milk, butter, eggs, vegetables, etc., besides other money spent by the individual camper and their visitors.

Camp sites have been selected with reference to scenery, bathing facilities, water supply and food supply. Many were built where the only available route to them was by water or the only easy route by this means. The character of the soil did not enter the consideration of the first camps built as they were small and very crude.

It is now recognized that several things enter into the maintaining of a successful camp.

Parents send their children to camp for several reasons; the principal ones are: that they may live out of doors to obtain or maintain strong, vigorous bodies to endure the strain of study incident to the winter months at school, that they may obtain knowledge of woodcraft, athletics,

boating, swimming and other things which build up a strong, vigorous body and mind.

These campers come from every part of the United States, so that when they arrive in our respective states we ought to be sure that they are free from communicable diseases, which means that they should all be examined before leaving home. We ought to be as sure that when they leave from home that they are as free as when they came. It certainly would hurt our states immeasurably if children after returning home from their summer spent in our camps should develop typhoid fever or other diseases or should have these diseases in larger numbers during the summer.

As these camps have increased in number and the numbers of the campers have increased it has been demonstrated that the best milk and purest water should be available and that the disposal of garbage, refuse and sewage is a most important problem. As these camps are mostly located on the shores of lakes, rivers and streams, (a few being on seashores) many of which are tributaries of water supplies, or are actually the water supply of cities and towns; this question of sewerage and sewage disposal is all important. We must protect the water supplies of our cities and towns.

One type of camp where little or no attention has been made to improve sanitary arrangements is the construction or logging camp which is the pioneer camp and is often the forerunner of the people. The construction or logging camp is located far in the wilderness for the purpose of bringing out raw materials to be used in industry. The class of laborers in these camps is not as a rule of particular interest to the general public and formerly very little was done towards their health and comfort. In fact, very little was done to improve sanitary conditions at these camps until epidemics of typhoid fever or small pox brought them to the attention of the health authorities and the danger of polluting the public water supplies of cities and towns was discovered. Most logging camps were constructed on the shores of lakes, streams and rivers which later became sources of water supplies of cities and towns and in some cases epidemics of typhoid fever were directly traceable to cases of this disease in these camps.

When sickness came which was traceable to these camps then people began to realize that they

were not independent workers, but that there was always a certain relationship with all workers and the people in general.

Camp sanitation must include every sanitary arrangement for the comfort of the camper and all arrangements for the prevention of disease. They must be protected from mosquitoes, especially at night, not that directly mosquitoes are a danger to health, but they certainly are a great inconvenience and a nuisance. Besides the protection offered by screening the sleeper, the important thing is to destroy the breeding places for these insects.

Flies are a nuisance and a danger to health. They are spreaders of disease and a danger to the community. Flies are not tolerated, and if found, are an indication that there is some unsanitary condition existing not far away. Many a camp owner has said, "We never have any flies here," yet there are many flies about when looking for them.

The important things to be considered in a camp of any size, are: that the water supply is safe and abundant to take care of the camp needs at any time even in the driest seasons and that the chances of polluting the source of the water supply are reduced to a minimum. Camps obtain their water supply from brooks, natural wells, artesian wells, springs and in some cases from the lakes.

Brook and lake supplies in our state are not recommended as sources of water supplies as there is always opportunity for pollution from careless or irresponsible people which in some cases have resulted in serious illness. It must be known that the milk supply is from accredited tested herds of cattle and handled in clean dairies in a sanitary manner and that there is a proper disposal of garbage and sewage.

The upper few inches of soil is the home of countless millions of bacteria. These bacteria in the natural state are not generally productive of disease in man, although there may be bacteria in soil which if introduced into wounds would cause tetanus, malignant oedema, anthrax, etc., sometimes staphylococci and streptococci. The soil in its natural state is practically free from disease producing organisms and it is only after man has appeared and polluted it with his careless habits is it dangerous to health.

The trail of man is marked and well marked by tin cans, scraps of paper, remnants of wasted

food, garbage, ugly camp sites, fecal deposits, flies and other disgusting reminders of civilization. Primitive man must move his camp at frequent intervals to avoid his own filth and allow nature to clean up after him. Civilized man rapidly soils his vacation camp sites in spite of laws, forest rangers, notices, pleadings and especially the cleansing action of nature for nine months of the year. The soil is capable of taking care of large quantities of organic matter but when it is well burdened it remains polluted and then becomes a danger to health.

It is not only the amount of pollution, but the kind of pollution and also the manner of disposal which plays a very important part, and may endanger health by polluting drinking water or endanger life in other ways.

The soil of the field is called dirt when it gets onto our hands or into our houses and becomes a potential danger when it becomes polluted with human excreta or soil bacteria associated with wound infections. To the sanitarian dirt includes the soil polluted with manure, rubbish and organic wastes of all kinds. It may be the vehicle, but not the source of infection. We know that typhoid fever and other infections do not originate in dirt, but that it favors conditions which spread diseases, whose case may be deposited in the dirt.

Flies and other insects known carriers of infection breed in filth, live in it and spread the infection which may happen to be deposited in it.

Rosenau says that, "Cleanliness is the heart and soul of sanitation. We are inclined to place it even before godliness, for cleanliness of body, cleanliness of mind and soul, and cleanliness of our surroundings are essential to a full appreciation of the spiritual virtues."

When we consider that these boys and girls in our camps are the pride and comforts of their parents and the future parents of other generations it certainly is no small matter to look after them. Camp owners and directors assume heavy responsibilities when they take charge of these people to look after their moral, mental, spiritual and physical welfare. The conditions of life are completely changed from their home environment. The important function of summer camps is to return the boys and girls to their homes with improved health, physique and in a better mental condition.

With several thousand boys and girls in these camps in New England it behooves us to see that they are protected against disease in every way, by proper water and milk supply, proper food properly prepared, that the disposal of sewage and garbage is all properly looked after, and that the bathing beaches are properly protected against pollution and that the bathing load is not exceeded.

A camp site should be selected not only as to good water supply but also with respect to good drainage and good surroundings. The character of the soil is very important. Clay makes a bad soil for camps as it does not afford proper absorption of moisture, and if the season is a rainy one, it is particularly disadvantageous. This kind of soil does not afford proper drainage for the disposition of sewage no matter what system is used.

Camps should be carefully laid out so that there is no chance that the sewage may contaminate the water supply and the bathing beaches. They should not be built too much in the shade so that the sunlight will not have a chance to thoroughly dry the ground after rains or in foggy, damp weather.

After the camp is selected, the type of housing selected, it should be built as simple as possible so that it can be kept clean easily, with proper light and ventilation and properly screened. The kitchen and dining rooms should be as far as possible for convenience sake from the toilets.

In Maine the health problems of the summer camp are those of the ordinary home, many times increased as many of these camps have between 50 and 150 campers. Camps need every safeguard that every home should have, and as the camp owner or director is in charge, he is loco parentis and is directly responsible. The campers must share with each other all the sanitary arrangements of the camp and should be considerate of each other.

As one would not, from choice, select a low, marshy spot or a place surrounded by wet, moist ground for his home so such sites should not be selected for camps, especially when they are to accommodate a large number of people. Wet, marshy places are breeding places for mosquitoes. Water soaked soil is not favorable for camps as it does not permit of proper drainage as the water level is very near the surface. For this reason of

drainage, clay soil is to be avoided as far as possible.

When it is considered that the summer camp is built for the purpose of keeping the campers out-of-doors, weather permitting, the camp and all surrounding should be dry and well drained.

As this fact is well recognized the construction of camps should be given careful consideration for ventilation at all times, day and night, and in all kinds of weather. Proper protection for the sleeper from winds and rain at the same time giving good ventilation. When camps were first instituted tents were the usual housing used, but more and more huts or buildings of the bungalow style are being used. There are several styles used, most of which are very satisfactory. The most satisfactory are those which accommodate only a small number, not over four or five campers with a councillor. The larger building for sleeping quarters are to be condemned, especially as to the dangers of spreading communicable disease. If only a small number are exposed the control is much easier. This has been demonstrated time and time again and in many cases the disease has been kept confined to the inmates of one house.

The kitchen is the most important room in the camp from the point of view of health. No one will contradict the statement that the places where foods are prepared and stored should be the most sanitary places in the camp. In the modern hotel today every known device for cleanliness in the kitchen is installed, and as the camp is in reality a hotel given to the taking care of children, only the same care and supervision should be given to the kitchen as in a hotel and should be so situated that they have plenty of sunlight. There should be plenty of room so that cluttering can be avoided.

Care should be taken in the selection of the kitchen help. Often the kitchen employee is mentally and instinctively lacking in appreciation of the niceties necessary in the handling of foods and often herself a carrier of disease.

Our state regulations require that all food handlers should be examined to show that they are free from communicable diseases, either in an active stage or as carriers. All cooks should be carefully questioned as to what diseases they have had, especially typhoid fever.

Dirty sink, food trays, dishes, benches and floors attract insects, especially flies which may

come from neighboring stables, from garbage containers, privies and toilets.

The ice box should be kept at a temperature of 50°. Many people wrap ice in some material to prevent it melting, ignoring the fact that the cooling of the refrigerator depends on the melting of the ice. This saves ice, but does not refrigerate properly, and causes people to wonder why milk soured while in the ice box. Many foods absorb odors, milk and butter being especially susceptible.

The dining room should be light, well ventilated and thoroughly screened in the preparation for the meals, and if food is put on the tables before campers arrive, it should not be allowed that flies may wander over the food at this time. Food should not be exposed to insects any more here than in the kitchen.

Our regulations require that liquids stored for drinking purposes shall not come in contact with ice in such containers, and water coolers must contain two compartments, one for the ice and the other for drinking water. The common drinking cup is not allowed in this State. Even if none of the people have typhoid, Riggs disease, venereal disease, diphtheria or other diseases, common colds are too easily spread to allow the use of the common drinking cup.

Garbage disposal, refuse disposal is demanded by the generally accepted standards of cleanliness and convenience. The accumulation of waste, food stuff, materials commonly called garbage may allow for the development of flies, though garbage is hardly left long enough for that, yet the danger is that the odors of garbage attract flies from still more undesirable localities. Garbage cans should, therefore, be odor tight, as well as fly tight and should be water tight for otherwise leakage from the can will cause accumulations of foul smelling substances in the soil about it.

We recommend that the garbage cans should be kept in screened places on cement foundations which can be easily taken care of. Cans for the reception of food refuse during the preparation of the meal must be emptied after each meal. All garbage cans must be thoroughly cleansed after emptying and should be carefully sunned.

The final disposal of refuse and garbage is an important problem. Tin cans and such refuse should be cleansed so that no food is left in them, or burned out in an incinerator, then hauled away

and buried. Garbage is usually taken away by a farmer to be fed to his pigs, but in some places this cannot be done. Under these conditions it should be burned.

Any method of sewage treatment of excreta disposal if it is to be effective in the reduction or elimination of disease must prevent:

- (a) The access of flies to the excreta.
- (b) The access of animals to the excreta.
- (c) The scattering of the excreta or sewage over the surface of the ground, causing soil pollution.
- (d) Ground water pollution, or the contamination of wells, springs and other sources of drinking water.

There are, of course, other points which must be considered before the workability or practical application of any type of privy or method of excreta disposal can be determined, but the sanitary and health protective values will depend almost entirely upon compliance with the mentioned conditions.

It is not necessary to go into the detail of the first requirement, as it is a well known fact that flies are carriers of various diseases and all filth should be protected against the fly so that he will not be scattering filth about. The persons who are actually sick are probably not the only ones infected as others escape through natural resistance or immunity or for other reasons.

The important thing is to select the proper or best methods of sewage disposal which the situation of the camp and the character of the soil demands.

The camp owner has choice of the pit, box, can, concrete vault, chemical and septic privies where running water is not available, and where flush toilets are used, the septic tank is the best means for disposal. These for convenience can be divided into two groups, those in which water is not utilized as a flushing or carrying agent and second those included in the water carrying system.

The first class as a whole are not entirely satisfactory, yet have their advantages under certain conditions.

The pit or vault privies should be made inaccessible to rats and vermin. Deep, tightly built vaults keep out rats and other animals, but are hard to clean. The pit privy is preferably used in some instances because the house can be moved to

new positions and the pits covered with less nuisance than attends cleaning the permanent vaults. The privy house itself should be fly proof.

The dry earth privy. In this method of sewage disposal dry earth or other substances are used to cover the excreta. And because of the use of the earth, ashes or other substances, the amount increases more rapidly and necessitates cleaning more often.

The box and can or pail system has little to recommend it when other systems are available. The pail, can or box, should be cleaned often and in some cases daily. It is often difficult to get a scavenger to do this, and it means that the excreta is to be disposed of by some method. Various methods are used for this disposal. It may be buried, incinerated or tank treatment used. The choice of this final disposal will depend on the amount of material to be disposed of, the type of soil and other considerations. Burial is perhaps the method most frequently used where sewers are not available for disposal. The most common disposition by burial is in pits or trenches. These may be of various sizes and of various depths, but generally they should not be over three or four feet deep. It usually requires from two to four years, possibly longer for the pit contents to digest completely. There should always be two sets of cans or pails. The pits or trenches should have a cover of at least twelve inches of soil.

The main advantages of burial in pits or trenches are less attraction to flies, less nuisance, better covering and the reduction in the chances for surface wash or mechanical pollution.

In pits used for the whole year in our climate the question of freezing must be taken into consideration, but as camps are only used about two months in the year, we do not have to consider this.

The person upon whom the task of emptying the cans or pails falls is usually more concerned in doing it the quickest way than in doing it the right way so have to be kept constantly under supervision.

The septic type of closet depends for its action upon the same principal as the septic tank, that is, the retention of the excreta, and its storage under such conditions as to allow a process of sedimentation and septic action. Water is added to aid in the bacterial action. The overflow from the tank

must be treated further to prevent it from spreading disease.

This type of privy was developed by Drs. Lumsden, Roberts, and Stiles of the U. S. P. H. S. and at once sprang into much favor. It was most unfortunately advertised widely as a type requiring no care. It must be given regular attention or it is very objectionable, especially in the northern states when the freezing cold weather has to be considered for all the year use, and is especially objectionable when large numbers are using it as in the summer camps. Sufficient size is an absolute necessity and the initial cost is quite high.

We have been considering the disposal of excreta by means of the various kinds of privy, but the privy is no longer adequate when running water has been installed in the house, and bath, toilet, kitchen sink and other connections are contributing to the wastes from the household. These wastes consist of a mixture of a large amount of water and a small amount of fecal and other organic matter. This relative small amount of organic and fecal matter is sufficient, however, to render entire mixture objectionable and subject to putrefaction. The sewage may also contain disease germs. Some treatment must be given to prevent nuisance and the spread of disease.

The most generally used process of primary treatment or clarification is tank treatment. The sewage is passed through a tank or chamber which slows up the velocity of flow sufficiently to cause the coarser suspended matter to settle to the bottom or rise to the top. The partially treated sewage, now called the effluent, passes on out of the tank to undergo further or secondary treatment if it is deemed necessary. Septic tanks of various construction are most commonly used in the treatment of sewage. Imhoff tanks or plain settling tanks may also be used. The septic tanks treat sewage by sedimentation and septic action.

The size of the septic tank depends upon the amount of water to be used. If shower baths in addition to the regular sewage are to be used the capacity has to be increased and must also depend on the character of the soil and lay of the land where the final disposal is made.

The cesspool which is a basin or pit in the earth for the reception of effluent from a water system

of sewage disposal are of the two kinds, the leaching and tight. The subsoil in the vicinity becomes heavily polluted, the distance of travel of such pollution depending on the type of soil and the depth of the ground water. The depth is usually great enough to place dangerous contamination within reach of ground water, thus increasing the danger. For this reason cesspools are not considered very favorably.

The various methods of secondary treatment include subsurface irrigation, sand filters, trickling filters, leaching wells, etc.

The most common is subsurface irrigation which consists of discharging the effluent from the tank into the earth beneath the surface of the ground. This is usually accomplished by means of a line of open joint tile laid in one or more rows 12 to 20 inches under the ground surface. The effluent from the septic tank overflows into the pipe line through the open joints into the ground. This method may be used in any place where the ground is porous enough to absorb the liquid and where there are no conditions tending to cause pollution of ground water. It works best, of course, in a sandy or gravelly soil, and may be used with proper precautions, in tight soils. The tighter the soil, the greater the amount of tile needed and the more care required in construction.

The kitchen sewage should not go into the same tanks or cesspools in which the toilets empty, as the excessive amounts of water that are there used will have a tendency to overload the ultimate disposal of the tanks or pools. To prevent clogging of the pipes used for kitchen sewage the grease trap is used and so situated that it is of easy access for cleaning purposes.

The sleeping quarters should be located on high, dry ground, well drained and well exposed to sunlight. If tents are used, they should have individual mosquito netting to protect against the mosquito and the recreation halls should also be protected. Mosquito bites may become infected and cause not only discomfort, but become a danger to life even.

The communicable disease problem is a very important one to consider when boys and girls from 6 to 18 years of age are gathered together from all parts of the United States and even from other countries, as there have been campers

from the West Indies, Mexico, China, Japan and Canada. In most of the camps, if not all, a physician's certificate of good health is necessary. This, of course, lessens the chance of communicable disease, yet in spite of this we have some cases brought to us, as occurred last year in one camp. One girl being taken sick en route with what proved to be measles, but before it was diagnosed several had been exposed. Prompt reports by the camp owners and prompt action of the health department kept the disease to a minimum with proper quarantine.

Two years ago scarlet fever developed in the State Y. M. C. A. Camp. In this camp the buildings accommodate forty to fifty boys, so that special quarantine had to be made for all the boys in the building in which the case appeared. Because of the large number there were several cases in that building, yet no cases developed in the other buildings. If the building had accommodated only four or five probably the cases would have been greatly diminished.

It is very important that a separate building be maintained for an infirmary where all sick can be looked after and if a case of communicable disease develops it can be properly isolated.

With the advent of the automobile another problem has entered the field of public health. Touring by automobile has become firmly established in this country. Many people have been able to take vacations and view the country as never before. Our roads are full of people who carry their own camping outfits or are looking for established camp sites. Within two or three years many camping places have been offered to the public with, and in many cases, without proper sanitary arrangements.

Many people camp wherever they may happen to take a fancy, by the banks of streams, rivers, lakes and ponds, and by the roadside, leaving the camp site cluttered and a blot on the surface of the earth. Remnants of food scattered about and their excretions not properly taken care of is a proper breeding place for flies and a menace to the community.

In 1922 the Maine State Department of Health started to make analyses of water supplies of all summer camps offering this service to camp owners free of charge and urging them to take advantage of the offer.

In 1924, regulations were passed requiring all public eating and drinking places to have their water supply analyzed by the State Department of Health at least once every year. Public eating places were defined in these regulations and included all recreational camps, lodging places, camping grounds, etc. The regulations also included screened dining rooms, proper garbage disposal, and sewage disposal equipment. All food handlers were required to secure a physicians certificate that they were free from any communicable disease. These rules and regulations were particularly well received by owners of camps and greatly improved the general character of the camps.

Last winter the legislature passed a law requiring that all recreational camps, roadside eating and lodging places, overnight camps, etc., must secure a license from the State Department of Health and in order to secure this license they must comply with all the rules and regulations pertaining to public eating places. This requires an inspection of every camp and it is hoped that the sanitary conditions of these places will soon be the best that may be secured.

No summer outing is more profitable to the city child than that of the well conducted summer camp. Six or ten weeks of camp routine, with its schedule of work and play, is apt to make any child more robust, more self-reliant and resourceful, better able to co-operate with others and a keener lover of outdoor life and nature.

But, with such quantities of camps to choose from—mountain, lake, forest and grove—how are parents to know which is most desirable?

Since the first aim of the summer camp is to produce healthy youngsters, the wise parent will look into the provisions that are made for insuring good health. In the first place, it is well to make a study of the camp site. More than natural beauty of landscape and bracing air are needed to make the summer camp a safe place for children. Very important is it that the camp have a safe water supply and a sanitary method of waste disposal.

Care should be taken that the camp does not receive its water from polluted streams or unsafe wells. Those in charge of a summer camp have

failed in their duty if they have not had an analysis made of the water supply. In most camps, not too remote from civilization, standard sanitary equipment can, and should, be secured, and installed. This should at all times be kept in good working order, or it may constitute a serious menace to health.

When parents have satisfied themselves that the camp has made ample provision for its sanitation, they should concern themselves with possibilities for contagion. When so many children from various communities and states are gathered into one camp, there always is danger of the outbreak of communicable disease. Among a group of children there are almost certain to be carriers and often actual beginning cases of disease. The well conducted camp will provide for the examinations of the children before they encamp and for periodic examinations of each child during the period of their attendance.

If a child should fall ill, there should be provision in the camp for his prompt isolation, and someone with sufficient knowledge of control measures should take the situation in hand.

The better camps will require that before the child is admitted, he must be vaccinated against small pox and immunized against typhoid fever. It would be well if the child is also protected against diphtheria.

Most camp leaders make wise requirements as to the amount of warm clothing and bedding that the children must provide. Too, they are restricted from taking an excess of such commodities.

These, then, are some of the precautions that parents should take in enrolling their child in a summer camp. What the camp offers in the way of special recreation and education is a matter for personal preference. A good thing to do, however, before the child is entered in any camp is to have a complete physical examination made of him. He might have a weak heart that would not stand strenuous swimming, long hikes, canoe races or other athletic events of the summer camp.

In summary, the sanitation of camps resolves itself into practically three factors.

- (1) Proper location.
- (2) Safe and adequate water supplies.
- (3) Safe and efficient disposal of wastes.

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RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

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Meets the third Thursday in each month excepting
July and August

ROBERT T. HENRY	<i>President</i>	Pawtucket
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PROVIDENCE

Meets the first Monday in each month excepting
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Meets the second Thursday in January, April,
July and October

JOHN PAUL JONES	<i>President</i>	Wakefield
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Meets the second Thursday in each month excepting
July and August

T. J. McLAUGHLIN	<i>President</i>	Woonsocket
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EDITORIALS

"THE COUNTRY DOCTOR"

The diminution in number of country doctors is believed by a part of the public to be due to an increased standard of medical education which, in turn, has reduced the number of medical schools and students. Apparent strength is added to such a belief because the need of rural physicians was felt about the time a few medical colleges were closing.

The theory does not explain why the sons of so many farmers are leaving the country. What

would a medical college with standards lower than is now acceptable do to return these young men to the country if they are determined to leave it without a college education?

The problem involves more than an increase in medical schools or students. The responsibility for it does not rest with the medical profession. When the cause for the general desire to leave the country districts is found, we may know why physicians do not locate there.

Meanwhile the criticism of selfishness on the part of the physician may be avoided by giving the public truer information about the matter.

GET THE AUTOPSY

Much has been written recently about the value of post-mortem examinations and in many places honest efforts, made to improve the work of hospitals in obtaining such examinations in their fatal cases, have begun to bear fruit. This is best exemplified in the larger teaching hospitals and it may be said that the percentage of autopsies obtained bears a direct relation to the grade of work that is being carried on in any given hospital. Where the spirit of scientific investigation prevails there will be found doctors who regard a study of the necropsy findings in their patients who die, as an indispensable means of learning medicine and of improving the advice, aid and protection that they can give to their living patients. These statements apply especially to the larger general hospitals and will be freely admitted. In addition to these, the *Journal* would emphasize the following: As James McKenzie has pointed out, in the private practice of the well trained general practitioner lies a fertile field for clinical investigation. Let us add that by the means of necropsies performed on the bodies of those who die as his *private patients* the general practitioner will increase his own knowledge of disease and will enhance the value of his clinical researches. If he can but overcome the ill-founded fear lest he give offense by requesting the permission for a post-mortem investigation and thus lose cast in the eyes of his patient's family, he will realize that on the contrary his thorough and upright desire to know underlying pathology and to trace out cause and effect will enhance his prestige. He should be able to point to the post-mortem as a last possible contribution on the part of the departed to the welfare of humanity, and can disarm criticism by the statement that were the death in his own family he would see to it that a necropsy was performed. The man who cannot make this declaration honestly has no right to be practicing medicine.

UNUSUAL SYMBOLISM IN A CASE OF
PSYCHONEUROSIS*

VALENTINE UJHELY, M.D.

217 WATERMAN STREET, PROVIDENCE, R. I.

I report this case because it contains some interesting features of the superposition of at least

three standard psychoses, and also because it shows the subconscious employment of symbolism unusual both as to its mechanical course and to its contents. There may be found in it food for speculation on how the family physician could redeem and prevent at an early stage pathogenic environmental situations which, accumulating themselves throughout the years and becoming exacerbated through the critical period of menopause, may be averted if only the general practitioner would understand the earliest symptoms of a latent psychosis and if he were willing to utilize his prestige in the family as an arbitrator of ethical relations.

Mrs. G. E., aged 52, of English, Scotch and Irish descent, with a good family history, Protestant, mother of eight living children, was always known as a sensitive, dutiful person. It is said she was not a good mixer with playmates, preferring books to games. (Later analysis brought out, however, that her parents had inculcated upon her mind a sort of seclusiveness as regards association with playmates or adults, which education she always silently resented.) About ten years ago she had otitis media, during which she was subject to transitory crying spells. She was sleepless at that time and worried about this fact. During the birth of some of her children she cried in an uncontrolled manner, and after their birth seemed excited. Her married life was apparently happy with a husband who courted her for six years. (The husband is even now convinced that she was perfectly contented until recently.) In thirty years of married life nine children were born, one of which died. Some of the children are very intelligent and graduated from college with honors. One year and a half ago, when the patient was 50½ yrs. old, she started to worry about dreads, that she may contract some horrible disease, or some relative may die, or else some other terrible thing may happen to her and her family. She experienced palpitation of the heart, morbid fear of death and insanity, and complained of inability to eat because of gas in her stomach. She also worried about having acted like an animal at times. She lost thirty pounds, became depressed and sought relief first at the Newport Hospital, but

*Presented in the Psychotherapy Clinic at the State Hospital for Mental Diseases, Howard, R. I., December 15, 1927.

later in the Butler Hospital, voluntarily. After a few weeks she left unimproved, against medical advice. She accused herself of the vilest things, which she never committed, telling her husband that she had sex intercourse with other men before her marriage. She told him this fictitious story merely for the sake of distressing him. She evidenced crying and clutching spells, for which she was incapable of giving any account. It was believed that she did not recall some of these spells as she could not account for their cause. During her stay at the Butler Hospital she had fits of rage, broke glass and swallowed some with suicidal intentions. In spite of the fact that her husband took her out of the hospital upon her insistence, she staged a scene of violence against him at home, after which she was committed to the State Hospital for Mental Diseases, at Howard, R. I., on August 17, 1927. Here she became noisy, especially during the night, so that beside psychotherapy and detailed analytical study, calming hydiatic procedures were added to her daily routine. She went to bed every night at 6 o'clock, slept soundly until 3 A. M. and then complained of insomnia. (The correct appreciation of this state of affairs, which has contributed much to her worries, came only after analytical and reeducative psychotherapy.) Her menopause started insidiously three years ago, but became established after a stay of a few months in this hospital. Between spells of screaming, clutching and wringing her hands, also biting her arms, she seemed ladylike, well-composed and highly cultured.

In the staff clinic the opinion was divided between Psycho-neurosis and Involution Melancholia, although there were some paranoid traits, which could not be well placed in either class. Therefore, her case was declared one of undiagnosed psychosis.—Hyperactivity, impulsive acts, indecision, twitching of fingers, agitation and anxiety, morbid fears, sadness, an oscillation between psychalgia and sarcasm, certain mannerisms, intact intelligence, at times appropriate emotional response together with partial insight were then the outstanding features. Physical findings were neurologically essentially negative, excepting for a moderate vasomotor instability, exaggerated knee jerks and Achilles reflex.

I started mental observations and tentative treatment on her on October 5th. By a method of persuasive reeducation, showing the general

and personal values of life to her and the futility of suicide, provided that she believed in the buddhistic Nirvana, as she said she did,—she calmed down temporarily, proving to me that the vivid parables and mental images I applied have effected in her an ideational control over her emotions; but when I left her alone temporarily, her recently acquired rational defense mechanism did not prove strong enough to resist the irrational urge of psychotic self-expression.

There were fifteen long analytical sessions, during which considerable and multiple mental traumatism distributed throughout her whole life could be revealed. In the first twenty-five years of her life she experienced an accumulation of twenty-three intensive negatively-toned mental occurrences, whereas in the last ten critical years there occurred eleven intensively negative-toned part-traumas. Those occurring in early life were of sexual nature; shock because of a man chasing her, proposing indecent relations, exposing himself; curiosity about masturbation and remorse for having habitually practised it before marriage. An early disgusting experience with filth also fell in this period.

In the middle part of her life, beginning from the event of the love technic her husband displayed on the wedding trip until the time when the children were older, she worried for having coupled her life with an emotionally chilly and affectively unresponsive man. Later, when she became retrospective about this matter, she entered in a state of rage, as she felt similar to a helpless animal trapped cruelly in a cage. In order to "hold on to her nerves" she performed the mimic of biting, i. e. controlling her arm lest she hit someone, especially her husband. She also clutched her hands in an attitude of prayer, for the great self-oblivion and annihilation in the buddhistic Nirvana. Her screaming expressed despair, for she considered herself dead-locked. Too many children were also one of her worries. She was affectionate, and consequently had to bear children as she always was a strictly moral person. Condomated and interrupted coitus was resorted to with the usual damage done by the latter to her nervous system. During her intimate intercourse with her husband she saw non-sexual images, like beautiful forests, houses, and other landscape without any human being in perfect solitude floating in

the air. This can now be interpreted analytically as an attempt to escape from distressing reality. She failed to find an intrinsic interest in sacrificing for her children, as she was brought up by her parents in a manner unfavorable for normal sociability and community ideals. She also was told by her parents about the excessive danger of dirt and masturbation, which two items have had a considerable after-vibration throughout her following life.

When she was 23 yrs. old, in order to reduce a fractured arm, she was etherized. She dreamed that she lay on the bottom of the ocean as the most primitive being: a protoplasm. Then she ascended to an upper level of existence, becoming a shell. And after having passed through several forms of increasingly higher and higher avatars, she finally broke out from the ocean as her actual human self. Then she awoke and lapsed promptly into a second dream, during which she saw herself sinking suddenly to the bottom of the ocean, starting again the difficult climb through all forms of existence. Such series of evolution and involution of a most general cosmic and, so far as this earthly existence is concerned, ultrapersonal agent in her dreamworld appeared then the first time, in my opinion as a forecast of what I would term an immortality complex coupled with a deep craving for importance and social prominence. Nineteen years ago, after ingesting a teaspoonful of Bromine Solution she had an experience of depersonalization, consisting of the sudden perception of her body stretched out on the bed, while her real self seemed to have been floating in the air. This might be interpreted as a sign of genuine hysteria, shared by poor medieval victims burned as witches; or else, one may consider it as a symbolic expression of her craving for liberation.

During the past ten years her husband became gradually more frigid, although his dynamic potency did not suffer. She had to humiliate herself in her own eyes as she had to ask her husband for sexual satisfaction during the past eight years. He responded politely, but in a business-like, disinterested manner which shocked her self-respect. There were a number of other smaller mental traumas in the past ten years, but the above described one seems to have been the most outstanding.

Since in this hospital she has done considerable retrospective misinterpretative autistic specula-

tion. She has developed ideas of reference from hints she believed the nurses and other persons have made concerning her foolishness and her husband's infidelity. She evidenced a most interesting phase in the acute development of persecutory ideas centered upon the husband and of suspicions toward her environment. She has oscillated considerably in her attitude toward the psychotherapist, as one day she doubted that he was the person whom he pretended he was, while the next day she treated him as a friend and according to his duties. She had illusions concerning certain persons entering the wards and talking to her husband when these people were not those whom she believed they were. She actually never was afflicted with hallucinations, but indeed with delusions of variable content and with transitory illusions. One week ago, after having read some medieval history, she conceived the idea of having originated from the Plantagenet Royal House. To furnish reasons for this belief was not necessary according to her, because she "knew it" and that sufficed her. But upon urging her, she said that the ferns on the ward were allusions to the royal crest of the Plantagenets, and she showed that her family name resembled the name of a noble family of Germany which was connected hypothetically with the Plantagenet Royal House. Thus, the different families intermarrying in the past, she now infers by hypothesis that she must therefore be a member of the Plantagenet Dynasty. She also likens herself to the pillars of an arch; if they fall, the whole edifice collapses. If she were compromised in the eyes of the world and fell, it would bring about great consequences; many notable European families would also perish. Thus she continues her day wish-dreaming about symbolized social prominence and importance. The wish-phantasying now seems to be a pathological defence mechanism, but its first origin can be demonstrated in the fear of mortality of her person and cosmic importance, as shown in the ether dream above related, occurring longer than twenty years ago.

After having reached comparatively weak therapeutical results by mere deviating suggestions, I concluded that more intensive effects could be attained with a technique not fatiguing her attentive concentration, but only decreasing her natural resistance against accepting foreign mind contents, meanings, symbols.

For this purpose, after a two months' period of tonic and dietetic preparation, the attack on a special abnormal point, for example the autistic form of reasoning, was made from a varied angle, in a dramatic, vivid manner and thus the fractionated method of psycho-cathartic analysis with interpolated hypnoideal suggestions, interpretations and reeducation was employed, one of the sessions being purposely stretched out for four hours and another in the series for four hours and a half.

In the reeducational dialecto-therapy the most impressive idea to the patient was the discovery that she did and does not really crave for a Nirvana-like extinction of her own self-awareness, but for the extinction of mind-pain from her personality consciousness, which she indeed fundamentally wishes to maintain. The other strongly impressive and deeply inculcated therapeutical argument against suicide was the idea of her responsibility toward her children's reputation and also toward the avoidance of becoming a demoralizing example.

According to tentatively devised point scales of our metric tests performed on the patient before and after these protracted treatments, I may state that:

Her insight improved from 52 to 77% ;

Her attitude toward reality improved from $1\frac{1}{2}$ to $13\frac{1}{2}$ % ;

Her ego-circle reaction improved from 15 to 62% ;

Her immediate response to reeducative and suggestive dialecto-therapy improved from 45 to 81% ; and finally a 20% improvement was noticed by the psycho-technician, my assistant, in the patient's social interest and other group reactions to reeducational mental training classes the record showing a modification of 40% value to 60%.

In conclusion, for diagnosis, I would suggest Psychoneurosis, Hysteric type mainly according to the fashion of a Substitution Neurosis, Involution playing an additional rôle. The prognosis would depend upon social methods of stabilization, co-operativeness of near relatives, finally on periodic medical after-care.

Finally, I wish also to express my sentiments of appreciation towards Dr. Sartwell, Superintendent of the State Hospital, who has referred this most interesting case to my department, thus giving me opportunity to study it.

CLINICAL DISCUSSION

Drs. Coon, Johnson, Littner and Perkins agree with the diagnosis.

Dr. Sartwell: I agree and wish to add that this case is very instructive. When the patient was presented first, several months ago, she showed involuntional symptoms, an organic psychosis of which the outlook seemed dubious. It was somewhat atypical and, consequently, a few members of our staff thought of a psychoneurotic element, although the involuntional picture was the more prominent one. In the analysis it is now brought out that there is an ideational element which can be made to influence the emotional factor. An improvement has been brought about in this case of which there is evidence that it is not as grave as it was thought at first. I fully believe, had this patient been allowed to vegetate on our wards, she would have deteriorated in due time. But her improvement, I think, shows the value of painstaking analytical and suggestive work in such cases. We never know with certainty just when a mental patient can be helped. I believe the benefit she has gained depended largely upon the psychoanalysis or "mental overhauling," as the patient herself termed it most appropriately. In my present opinion the outlook is possibly favorable, and Mrs. E. ought to go home. According to the analytical data, it would seem advisable to give the husband a "mental overhauling" before the patient leaves the hospital.

Dr. Ujhely (concluding): The SUMMARY of the case contains five points of interest:

(1) Here is an instance of hysteroid substitution psychoneurosis with a reality consciousness, shifting to and from the normal border line, with partial insight and a pseudo-philosophic psychalgia.

(2) More than twenty years before the actual onset of the psychosis an accidental ether dream revealed symbols of craving for a cosmic expansion of the patient's personality, and a fear of its shrinking, which according to the writer seems indicative of an immortality complex. The connection between the remorse at having masturbated and the fear of a relapse into the animal state, also the performance of animal-like violent acts during her later psychosis, is noteworthy.

(3) The psychosis broke out actually after the menopause began to establish itself; before its ac-

tual establishment hysteroid motor symptoms, essentially symbolic mimic gestures, were prominent; after its actual establishment, however, paranoid ideas of reference came into the foreground.

(4) Also compensatory day-dreams relative to the expansion of her personality and its cosmic importance were observed recently.

(5) The fractionated protracted method of psycho-cathartic analysis, focussing at any one time the patient's attention upon different emotional zones of the affective sphere, the analysis being interrupted only by drawing the reeducative lesson and suggestively engraving it, proved more beneficial in this case than purely suggestive and hypnoideal methods alone.

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For suggestive therapy: Forel: Der Hypnotismus oder die Suggestion und die Psychotherapie. (In German. Stuttgart).

For reeducational methods: Schultz: Seelische Krankenbehandlung. (Clinical Psychotherapy, in German) Jena.

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SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION (Providence District Society)

The Annual Meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, January 2, 1928, at 8:45 o'clock.

Program

1. Reading of the records of the previous meeting.
2. Report of the Secretary.
3. Report of the Treasurer.
4. Report of the Standing Committee.
5. Report of the Reading-Room Committee.
6. President's Annual Address.

7. Election of Officers and Committees for the ensuing year as follows:

President—Edward S. Brackett, M.D.; Vice-President—Arthur H. Ruggles, M.D.; Secretary—Peter Pineo Chase, M.D.; Treasurer—Charles F. Deacon, M.D.

Member of the Standing Committee for five years: Henry J. Hoye, M.D.

Trustee of the Rhode Island Medical Library for one year: N. Darrell Harvey, M.D.

Reading Room Committee: George S. Mathews, M.D., Elihu Wing, M.D., Guy W. Wells, M.D.

Delegates to the House of Delegates of the Rhode Island Medical Society: E. S. Cameron, M.D.; W. H. Higgins, M.D.; A. J. McLoughlin, M.D.; P. P. Chase, M.D.; F. E. McElroy, M.D.; A. Corvese, M.D.; M. Adelman, M.D.; P. C. Cook, M.D.; C. W. Skelton, M.D.; R. S. Wilcox, M.D.; J. W. Sweeney, M.D.; P. Appleton, M.D.; W. Pickles, M.D.; A. A. Barrows, M.D.; G. H. Crooker, M.D.; C. H. Jameson, M.D.; W. S. Streker, M.D.

8. Appointment of Committees by the President.

9. Communications.
10. Reports of Committees.
11. Unfinished and new business.
12. Reading and discussion of papers.
13. Reports of cases.
14. Presentation of specimens.

The Standing Committee approved the applications of the following for membership:—

Clarence H. Woodmansee, Frederick A. Hasney, Joseph C. Johnston, Joseph Franklin, Herman A. Lawson, Julius G. Kelley, Kathleen M. Barr, all of which were duly elected.

Collation followed.

PETER PINEO CHASE, M.D., Sec.

KENT COUNTY MEDICAL SOCIETY (INCORPORATED)

The annual meeting of the Kent County Medical Society was held on Thursday evening, December 15, 1927, at the Elmcroft, Hillsgrove, R. I.

The following officers were elected for 1928: President, J. F. Archambault, M.D.; Vice-President, Geo. B. Farrell, M. D.; Secretary, G. Senerchia, M.D.; Censor for 3 years, Gilbert Houston,

M.D.; Censor for 2 years, Ben. F. Teft, M.D.; Delegate, Charles L. Phillips, M.D.; Councillor, Charles S. Christie, M.D.

Dr. Hudson read the annual President's address on Mitral Stenosis. The paper was very interesting as well as instructive, and Dr. Hudson was extended a vote of thanks.

Meeting adjourned and annual banquet was served.

G. SENERCHIA, M.D.
Secretary

HOSPITALS

MEMORIAL HOSPITAL

The following is a copy of the minutes of the Memorial Hospital Staff meeting held January 5th:

"Meeting called to order at 9 P. M. by President Wheaton. A very interesting and instructive address was given by Professor Charles Stuart of Brown University, subject being 'The Nature of Anaphylaxis.' This lecture was discussed by all the members of the Staff present. Routine business was transacted at the end of the lecture. Meeting adjourned at 11 P. M. Collation served."

JOHN F. KENNEY, M.D.
Secretary

ANNOUNCEMENT

State recognition of the high rank of Saint Luke's International Hospital School for Nurses, Tsukiji, Tokyo, was officially confirmed by the Imperial Japanese Department of Education by the publication under date of November 24, 1927, of an official decree conferring college (semmon gakko) rank on the institution, the course of study being for three years, and one year extra for taking special higher training.

The School is the first institution for nurses in Japan to be thus recognized, no girls being admitted without a diploma from a girls' high school. Saint Luke's International Hospital is under the management of the American Episcopal Mission, its head being Dr. R. B. Teusler, surgeon to the American Embassy.

BOOK REVIEW

PHYSICAL DIAGNOSIS (Ninth Edition) by *Richard C. Cabot, M.D., Prof. of Medicine at Harvard University*. Published by William Wood and Co., New York. 536 pages.

The present volume, ninth edition, is the same as that of the 8th edition except for the following additions:

- (1) In the chapter dealing with the heart sounds there are reference numbers corresponding to the Gamble-Cabot Cardiac Diagnosis Records which are to be marketed by the Columbia Phonograph Company of New York. These records illustrate normal heart sounds, accented and split heart sounds, presystolic, mid-diastolic and auricular fibrillation.
- (2) "Soliders heat" is given some emphasis.
- (3) In the section of blood there is a description of the Levy counting chamber instead that of Thoma-Zeiss.

The book still stands as a standard work in physical diagnosis for medical students and general practitioners in spite of the fact that because of its numerous technical terms it is not as interesting in reading as in some books which go into more details in explaining physical findings.

MISCELLANEOUS

ARTHRITIS

It is urged by Robert McE. Schauffler, Kansas City, Mo. (*Journal A. M. A.*, Nov. 19, 1927), that every physician use some simple clinical classification for arthritis and attempt to place his cases in one of these groups and direct his attention to the major characteristics of the group in his study and treatment of the individual case. It is necessary to distinguish between those cases in which the discovery and treatment of a local focus are all important and the other groups in which they are of little value. Every case of infectious arthritis imposes a peculiar obligation on the physician in charge. He must not be satisfied even if the symptoms subside, but must search earnestly for the focus of infection and attend diligently to the

general health of the patient. In the first year it is almost always possible to effect a cure; after five years, perhaps nobody can do so. In subacute and chronic cases it is undesirable to allow patients too much rest. If one keeps them down too long or knocks them down by too strenuous treatment, they may never resume any useful activity. No case of chronic arthritis should be accepted for medical, surgical or mechanical treatment, until the history has been carefully considered and a thorough physical and laboratory examination has been made.

ORGANIC TUBERCULOSIS IN MAN ANALYZED FROM POSTMORTEM AND EXPERIMENTAL DATA

Gross and microscopic studies of 106 autopsies of men who died of tuberculosis were made by H. J. Corper, Denver (*Journal A. M. A.*, Nov. 19, 1927), to analyze organic tuberculosis in man more accurately than was possible by utilizing the data in the literature alone. The average age of all the patients was 32 years, with a minimum age of 17 years and a maximum of 55 years. So far as could be determined, the age proved of no particular interest, within the range studied, with regard to a difference in organic reaction to tuberculosis. In order to make the examinations of these organs quantitative, each section was measured and its area computed, the number of tubercles counted in the entire area, and their size recorded by measuring the diameter twice, at an angle of 90 degrees to each other. The average of the two measurements of the diameter of the tubercle was recorded, because in estimating size either as area or as volume these figures would prove satisfactory for comparison, since the area of a circle or volume of a sphere may be taken as a function of the radius or diameter. The various clinical and postmortem features of the 106 cases were classified according to the four groupings +, ⊕, + ? and 0 in order to note any possible bearing of these on the organic reaction. Of the twenty-five + or suitable cases, twenty-two were recorded as being cases of chronic active pulmonary with pulmonary cavities; two as pulmonary miliary, and one as pulmonary inactive; of the twenty-three ⊕ or + ? unsuitable but positive cases, all were chronic active pulmonary

cases with pulmonary cavities, and of the fifty-eight negative cases without evidence of microscopic tuberculous lesions in the spleen, liver and kidneys, fifty-four were chronic active pulmonary cases, fifty-three with pulmonary cavities, and four were pulmonary inactive cases. Of the twenty-five + cases, four showed a spontaneous pneumothorax, and four empyema; of the twenty-three unsuitable cases, five showed a spontaneous pneumothorax, and three an empyema; while of the fifty-eight negative cases fourteen had a spontaneous pneumothorax and six an empyema. Tuberculous meningitis occurred in four of the twenty-five + cases, in one of the twenty-three unsuitable, and in four of the fifty-eight negative cases. Ulcerative laryngitis was found in nine of the + cases, in five of the unsuitable cases and in five of the negative cases. Tuberculous peritonitis occurred in none of the + cases, in one of the unsuitable cases and in six of the negative cases. Tuberculous mesenteric glands were present in two of the + cases, in none of the positive unsuitable cases, and in four of the negative cases. Surgical tuberculosis, including bone and joint disease, was present in six of the positive cases, in two of the positive unsuitable cases, and in one of the negative cases. From these figures it would appear that pulmonary cavities, spontaneous pneumothorax, empyema, peritonitis, and mesenteric glands do not exert a decisive influence on the development of a miliary tuberculosis in the spleen, liver or kidney. Ulcerative laryngitis and surgical tuberculosis were more prevalent in cases of miliary involvement of the spleen and liver. Amyloidosis appeared to be more prevalent in the spleen, liver and kidneys of the negative cases. Adult man displays a decided resistance to spontaneous human tuberculosis and thus resembles the rabbit and dog, as compared to the susceptible guinea-pig and monkey. Contrary to general conception, the child also appears to display a decided resistance to spontaneous infection. In addition to the favorable location of the lungs for the aerogenic route of infection, it appears that this organ has the added disadvantage, so far as the welfare of man is concerned, in being especially favorably situated (from the standpoint of available oxygen) for the development of the bacilli, thus contributing to the predominance of pulmonary organic tuberculosis in man. A quantita-

tive analysis of the splenic and hepatic organic reaction, as well as of the kidney reaction, in adult man in the light of the knowledge gained through the study of the organic reaction in experimental animals indicates that the human liver is about as resistant to tuberculosis as that of the human spleen, and that the greater average number and size of tubercles in the latter organ after hematogenous dissemination is due to the difference in the factors of deposition and oxygen tension of the source of oxygen in these organs. The lower frequency of miliary kidney involvement in man after hematogenous dissemination may be accounted for by the lesser deposition of bacilli from the blood stream. In organic cellular reaction the human spleen, liver and kidney more nearly resemble that of the rabbit than any of the other animals studied. Pulmonary cavities, spontaneous pneumothorax, empyema, peritonitis and tuberculous mesenteric glands did not exert and influence on the development of miliary tubercles in the spleen, liver or kidney. Ulcerative laryngitis and surgical types of tuberculosis were more prevalent in cases of miliary tuberculosis of the spleen and liver, while the reverse was true of amyloidosis of the spleen, liver and kidneys. Ulcerative tuberculous enteritis does not play a decisive role in determining miliary hepatic involvement in adult cases. The organic reaction to tuberculosis of the spleen, liver, kidney and probably the lung in the infant does not appear to differ appreciably from that of adult man.

POSTURE STUDIES IN GYNECOLOGY

In making posture studies in gynecology, Norman F. Miller, Iowa City (*Journal A. M. A.*, Nov. 19, 1927), uses the silhouettograph. An 8-foot tunnel constructed of black muslin cloth covering a wooden framework is used; the screen, of oiled linen, is fastened to a separate frame in the front and is thus detachable, while a door permits access to the tunnel. The entire apparatus rolls on castors, and can readily be taken apart should the occasion arise. This tunnel arrangement for taking silhouettographs does away with undue exposure, one of the undesirable features of posture study. In addition to the silhouettograph, actual measurements are taken, including the breadth of the shoulders; the depth and circumference of the chest just below the breasts in the normal and in

the expanded condition; the abdominal circumference, measured at the umbilicus, and again 2 inches below; the circumference of the hips, and finally the depth of the lumbar curve, the costal angle, and the angle of pelvic inclination. The measurements and the history especially pertaining to the patient's symptoms are recorded on cards used for this purpose and filed with the patient's silhouettograph for further study. In a study of seventy-two young women without dysmenorrhea, twenty-seven, or 37.5 per cent, were considered to have good body poise; twenty-six, or 36.1 per cent, fair, and nineteen, or 26.3 per cent, poor body poise, while a study of sixty-nine girls with dysmenorrhea showed sixteen, or 23.1 per cent, with good; twenty-one, or 30.4 per cent, with fair and thirty-two, or 46.3 per cent, with poor body poise. As dysmenorrhea is one of the common and most troublesome symptoms, it was taken as the criterion for grouping these individuals. A further study of the group having dysmenorrhea showed that in fifty-eight, or 84 per cent, the pain began before the onset of the flow. This period varied from several days to a few hours, and most often lasted one day or less. In only ten, or 14.5 per cent, did the pain start with the onset of the flow, and in one, or 1.4 per cent, the pain started after the onset of the flow. An additional observation of interest was that 76.8 per cent of this group were relieved of their pain within three hours after the onset of the flow; in 91.3 per cent relief was noted in six hours or less; while in 94.1 per cent the relief was noted within twelve hours or less. It was also noted that the average duration of the periods in this group was 5.5 days, and further that seventeen, or 24.6 per cent, flowed for more than six days. If a flow of six days or less is considered as normal, then an average of 5.5 days is obviously high, and the seventeen, or 24.6 per cent, flowing more than six days may be considered as having distinctly abnormal periods. In the same group of girls with dysmenorrhea, it was found that twenty-five, or 36.2 per cent, had some leukorrhea. Pain in one or both sides at the time of the menstrual periods was noted in twenty-nine, or 42 per cent. Backache occurred in thirty-two, or 46.3 per cent. This was a constant symptom and was made considerably worse at the time of menstruation in thirty, or 93.7 per cent; and in twenty-three, or 71.8 per cent, it was accentuated when the individual was

tired. Of forty-six nurses, twenty-three with and twenty-three without dysmenorrhea studied, among those with dysmenorrhea there were five, or 21.7 per cent, with fairly good poise, and eighteen, or 78.2 per cent, with poor body poise. In the other group of twenty-three without dysmenorrhea, there were seventeen, or 73.9 per cent, with good and only six, or 26.0 per cent, with poor body poise. Comparison of the data shows a slightly larger average for the chest measurements and costal angle in the group without dysmenorrhea, and a smaller average (2 inches) for the abdominal measurements. Data regarding symptoms show a greater difference; thus, 52.1 per cent of those with dysmenorrhea flowed for six days or more, while in the other group only 8.6 per cent flowed longer than normal. The relationship between faulty body mechanics and pelvic symptoms is further emphasized by comparison of the other symptoms of the two groups. Analysis of the symptoms and their relationship to poor body mechanics in this study of 187 young women has strongly suggested a definite circulatory basis, secondary to faulty posture or poor body mechanics. Treatment by general upbuilding and systematic exercise is indicated. The outlook, however, is not particularly bright, since routine exercises are tedious and laborious at best and are generally carried out in a half-hearted fashion. Continuous and persistent prodding by the physician is necessary, and even that is not always sufficient. To be of greatest value and to accomplish noticeable results, treatment should begin in childhood in the development and improvement of the body and must be carried on throughout life. It is a matter for education and prevention rather than exercise and cure.

STUDIES ON EFFECTS OF ABUNDANT CEREAL INTAKE

The feeding experiments reported by George R. Cowgill, Margaret H. Jones, Robert A. Frisch and G. P. Jackson, New Haven, Conn. (*Journal A. M. A.*, Nov. 19, 1927), show that, when suitable adequate supplementary foods are employed, the use of whole-grain cereals and likewise one of the milled wheat breakfast food products so as to furnish as much as 84 per cent of the calories of the diet is compatible with excellent growth, re-

production, lactation and general physiologic well being in the rat. A milled corn product such as hominy was only slightly, if at all, inferior to these products. The results of diets containing even as much as 93 per cent whole-grain calories approximated those of current "normal" standards. Apparently, therefore, it is almost impossible to set physiologic limits to the amounts of whole-grain cereals that may be included as a chief source of energy in an otherwise "balanced" diet for the rat. Success with the very large inclusion of cereals as sources of energy in the diet depends on the proper choice of the foods used to supplement the cereal. The observations of Osborne and Mendel concerning the remarkable value of certain combinations of liver and lettuce in promoting growth are confirmed. It is appreciated that caution must be exercised in applying the results obtained from rat experiments to the nutrition of man. However, consideration of the development of the science of nutrition hardly allows one to contend that results such as those reported in this paper do not have a practical bearing on human nutrition. In the opinion of the authors these results demonstrate conclusively that cereals may be used by man to a much greater extent than is common in this part of the world, and that nutritive success with high cereal rations is primarily a problem of providing suitable supplements. Furthermore, these supplements, contrary to what seems to be the current belief, need not include milk.

NECROPSY REPORTS ON PERSONS DYING SHORTLY AFTER EXTRACTION OF TEETH

The clinical-pathologic reports of three deaths, occurring within a short time after the removal of teeth, are presented by Richard C. Buckley, New Haven, Conn. (*Journal A. M. A.*, Nov. 19, 1927), to emphasize again the dangers associated with the extraction of teeth. The first two cases illustrate the serious complications of extraction of many teeth in a patient whose general condition is poor as a result of an existing chronic disease. The association of acute infections and severe clinical symptoms in diabetes is well known. The second case represents a widespread cell degeneration which undoubtedly started following the extraction of a large number of teeth.